

REMARKS/ARGUMENTS

The Applicant confirms cancellation of claims 1-6 for the purposes of advancing prosecution. The Applicant has canceled further claims in order to narrow issues and focus on aspects of the invention. Currently pending claims are 9-12, 14-23 and 25.

The Applicant acknowledges the courtesy of the telephone interview of March 18, 2009 with participants Attorney Kenneth Allen, Inventor David DiFrancesco and Agent Bart Sullivan, representative of assignee PIXAR. It is believed that agreement was reached on allowability of all claims now pending as amended for clarification.

The present application is one of a series of related patent applications based on similar disclosure that address techniques for transferring digitally authored moving picture content of extremely high resolution to a movie film. This and other claimed inventions represent a departure from telecine techniques as well as laser scribing techniques.

Office actions have been received in related patent applications listed herein. (See Amendment to Specification, paragraph [0001].) The cited Ramsay reference has been cited against claims therein. In addition, related patent application Serial No. 10/637744, filed 08/08/2003 is now U.S. Patent 7,463,821, issued 12/09/2008.

A related European Patent Application is also under examination and which has yielded an office action against pending claims therein citing certain references as “particularly relevant if taken alone.” Supplemental Information Disclosure Statements have been submitted listing numerous references, including those in the European Application but have not as yet been acknowledged.

This set of patent applications each addresses different aspects of the digital media to film transfer process. In the present invention, the Examiner has classified the claims now under consideration as relating to driving a flat panel display based on frame data classified in class 382, subclass 100. To further focus on the aspect of the invention, the claims have been amended to highlight an important feature of the invention, namely, that the spatial and depth resolution of the frame data is preserved at the film recording unit.

This invention should not be confused with the plethora of art related to the telecine process. All of the cited art have to do with telecine or inverse telecine processes. The Applicant submits that those references are largely irrelevant for reasons herein further articulated.

The prior art to which this invention is addressed and is to be contrasted is the laser scribe technique of writing digital data with scanning multicolor lasers onto film. By contrast, this invention provides that the digital data be written to a display device, namely an electronically addressable digital flat panel display, wherein successively displayed full frame still images are successively photographed in high resolution onto successive frames of continuous movie film. In the most general embodiment (claim 1), the source image is presented in a manner that directly drives the pixels of the flat panel display.

In a further embodiment (e.g., claim 15), the same source image is presented by driving one or more digital light projectors which in turn each project the same still image onto the back side of the flat panel display from the film recording element in order to enhance illumination and depth resolution in precise alignment with the image created *in* the flat panel display so that the spatial resolution is not substantially degraded when it is photographed. There is nothing of which the Applicant is aware that did anything like this prior to this invention.

Heretofore digital imagery has been criticized as lacking in spatial and depth resolution as compared to film. Conventional photographing of digital images has heretofore been thought not to be able to compete with laser-scribe-based recording to film. However, laser scribing is extremely slow, cumbersome and expensive. This invention has taken a different approach, against conventional wisdom, to photograph to movie film from a high resolution digital flat panel display devices, a source that has not previously been used in this manner to make films of digital movies. It is believed that this invention solves the problem of the aerial image recording process, enabling image recording to be speeded up substantially while preserving spatial, color and depth resolution created by the source material.

The primary reference cited against claims 9-26 is a patent to Ramsay et al., U.S. Pat. No. 4,757,374. This same patent has been cited in sister cases to the present application.

The Applicant respectfully traverses Ramsay and contends that it does not suggest the present invention in any meaningful way, particularly as now amended.

Ramsay has been incorrectly characterized as representing an apparatus for registering images from a source digital display device to individual frames of continuous movie film media. The Applicant respectfully disputes such a characterization and submits that proper understanding of the Ramsay reference renders moot both the 102 and 103 rejections. The Applicants will therefore focus on the Ramsay reference.

In relevant portions, Ramsay teaches a telecine device, namely a device to register continuously changing *projected, analog* images onto film in real-time motion. The Ramsay reference also has a description of a device for capturing still images to *moving* movie film in real time motion. In other words, the still images are individual still diapositive slides and/or still frames projected onto a screen or through a lens system for registration as images in freeze-frame motion. The image is registered on moving film and evidently also onto videotape. This type of embodiment clearly teaches away from direct, still-source-to-still-target recording, where frame rates are intended to be matched. When there is a mismatch in frame rate between the source and the recorder, then there is a repeated or dropped recorded frame. This is part of the frame determining element of the claims. To make it clearer that Ramsay does not address this intended claim scope, claims 9 and 17 have been amended to reflect these distinctions. The Applicant therefore submits that the citation of the Ramsay reference is now rendered moot as to the intended scope of the present claims.

The Applicant submits that Ramsay is clearly not a device that includes a digital driver of a digital flat panel display from a source digital display synthesizing device. As close as Ramsay comes to the present invention is the use of a milk-glass screen element as an image source onto which is rear-projected a source image to be recorded in real-time on moving film. By its very nature, the milk-glass screen element cannot produce high resolution images. The surface and inherent depth of the milk-glass element simply causes too much light dispersion. This is one of the reasons why the Ramsay technology cannot be used to record onto film the images that are comparable to the source material, which in this case is very precise and of high resolution, now available at typically 4000 by 3000 pixels per screen.

Regarding claim 15 respecting an additional illumination source, the illumination source herein contemplated is in addition to that provided as part of the flat panel display. This illumination source is of a specific type not disclosed or suggested by the Ramsay reference. In claim 15 and similar claims, the secondary illumination source is a digital light protection (DLP) whereby the same still image presented on the flat panel display is projected onto the back of the flat panel display. While that element, when used to provide rear projection of the image, may lack the high resolution of a directly driven display, it is of sufficient resolution to increase brightness and enhance darkness and colors of the hybrid image as video by the film camera. In Ramsay, there is no teaching of a flat panel display source, let alone a DLP source serving as an enhancing backlight. These following passages in Ramsay either make no mention of light source (column 4, lines 62-67) or merely reference it in passing as being of a "suitable" type (column 7, lines 53-57), without any indication that illumination may be supplemental and image-specific.

The citation of Jones has been noted for its suggested use of a DLP source. However, it is part of a system for correcting problems with the telecine process, which is of relatively low resolution. Therein the use of a DLP is cited in the context of a primary source for a telecine process and not as an image-specific secondary source for enhancing a still primary source in a non-telecine process. One of ordinary skill in the art with Jones in front of him simply would not think to use a DLP in the manner taught by the present invention. Claim 15 and even more so claim 25 (using multiple image-specific illumination sources), therefore recite patentable subject matter.

The Ramsay reference has been misapplied as previously explained. However, the Lippman reference, cited in combination with the Ramsay reference, is also misapplied. Lippman clearly describes an inverse telecine apparatus. It is submitted that the Lippman reference and the Ramsay reference cannot and should not be combined to show obviousness. They are addressing different, opposing and therefore incompatible aspects of real-time conversion. They are thus mutually incompatible, and one would not look to the other to find a viable solution.

Moreover, the grounds for citation of Lippman are not understood. Lippman simply doesn't offer a viable solution in the present context. It is a non sequitur to assert that because Lippman teaches that inverse telecine processes can be time consuming, one would look to Lippman and relate its data associated with first and second frames to a speedier solution to the outstanding problems solved by the present invention. Moreover, Lippman is dealing with a problem of dynamic matching, where the source always has a different frame rate, and wherein the frames are formed by interlaced fields requiring that the perceived image have some persistence. Interlaced video is a so-called low-resolution video format that is not a primary target of the present invention. Since the present invention provides that the source image be still, interlacing is not an issue. To make this distinction more clear and to remove any source of confusion regarding frame rate and field rate matching, the Applicant has canceled claims 13, 24 and 26.

By way of perspective and summary, this invention contributes commercially valuable new processes for producing theater-quality movie film from digital, computer-generated source material. It overcomes some of the significant problems associated with film production from digital image sources. By contrast, the cited art is unrelated to this problem.

References cited but not applied have been considered and are believed to be no more relevant than the other art of record. In addition, the Applicant makes of record references cited in related patent applications, which are directed to claims respecting other aspects of the disclosed invention. In one of those cases Ramsay has been repeatedly cited against the pending claims notwithstanding patentably distinguishable differences.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

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PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, he is invited to telephone the undersigned at (650) 326-2400.

Respectfully submitted,



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